Graphics and Media

State of the Union

Session 000

These are confidential sessions—please refrain from streaming, blogging, or taking pictures.

At the convention center, a movie will be placed here

Graphics and Media

State of the Union

John Stauffer
Senior Director, Graphics and Media Engineering

Mac OS X
Snow Leopard

3.0

Mac OS X
Snow Leopard

3G
9:42 AM
Messages
Tuesday
9
Calendar
Photos
Camera
YouTube
Stocks
280
Maps
73°
Weather
Voice Memos
Notes
Clock
Calculator
Settings
iTunes
App Store
Compass
Phone
Mail

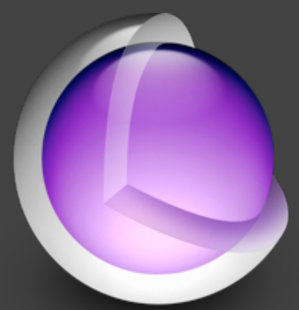
3.0

Mac OS X
Snow Leopard

3.0

OpenGL

OpenGL|ES



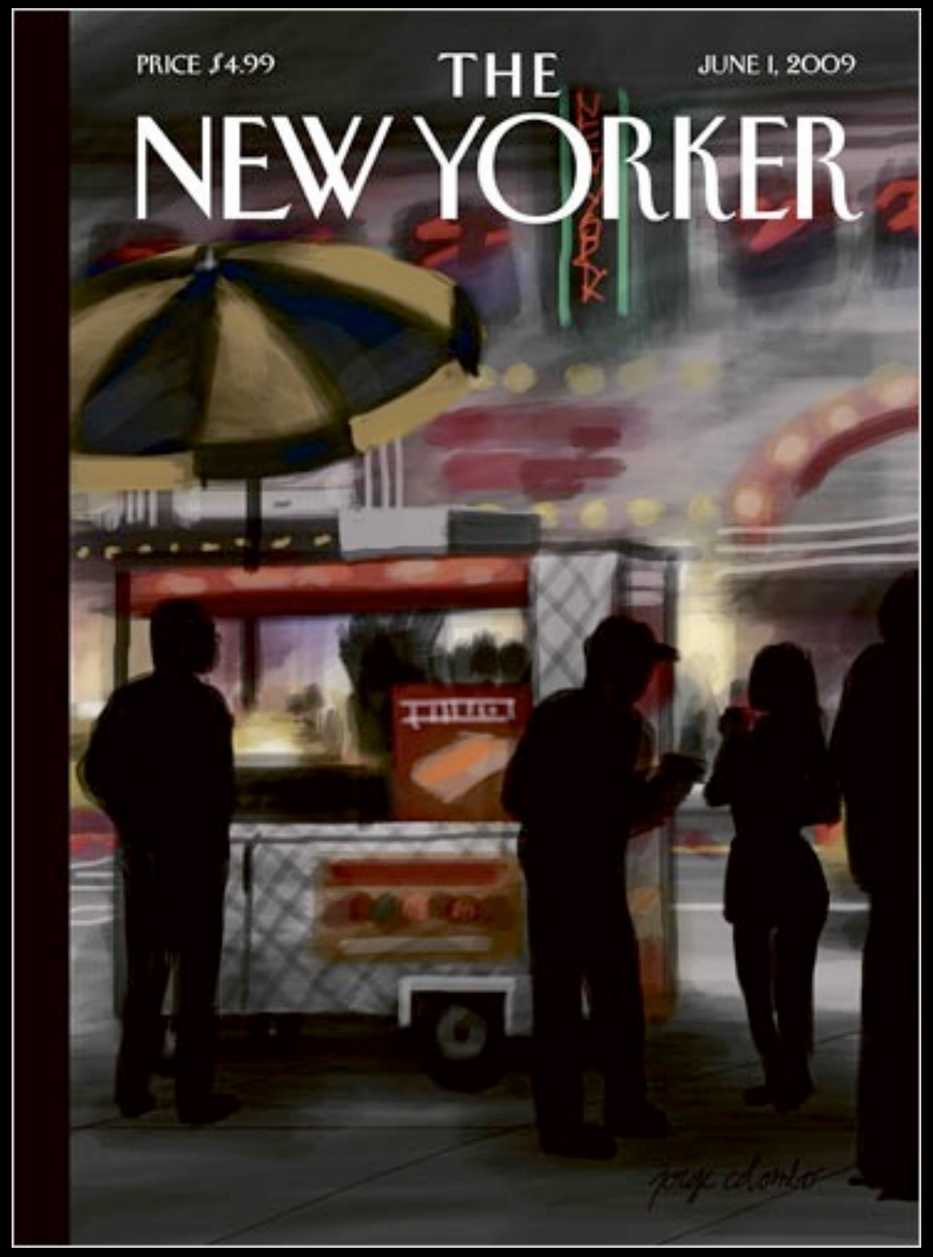
OpenAL

CPU

GPU

SDK
280

Brushes


PRICE $4.99
THE
NEW YORKER
JUNE 1, 2009

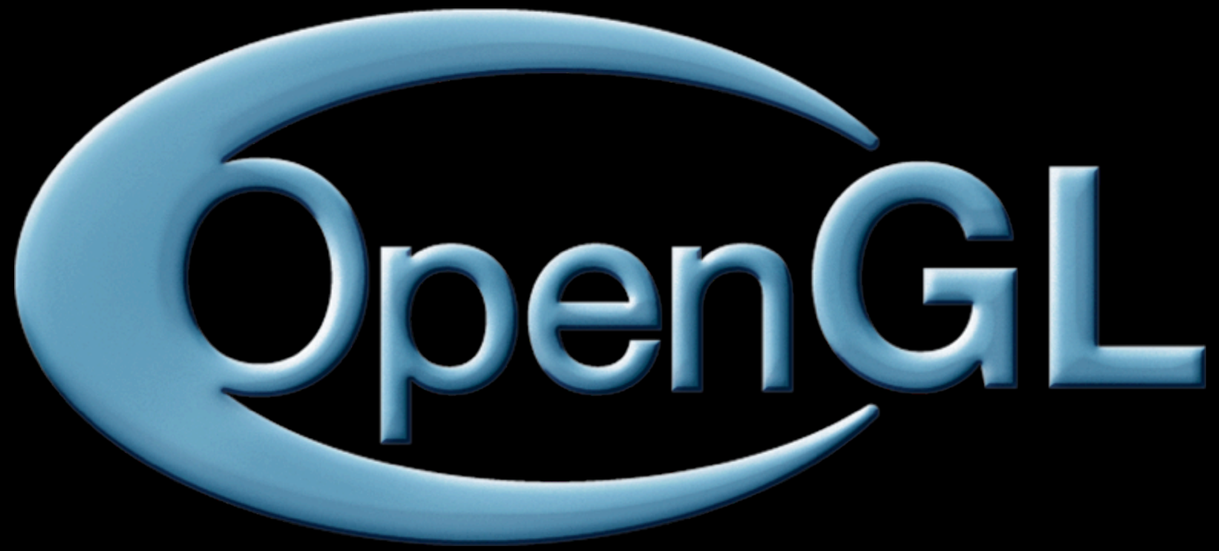
Books	Business	Education	Entertainment	Finance
Games	Healthcare & Fitness	Lifestyle	Medical	Music
Navigation	News	Photography	Productivity	Reference
Social Networking	Sports	Travel	Utilities	Weather

Books	Business	Education	Entertainment	Finance
Games	Healthcare & Fitness	Lifestyle	Medical	Music
Navigation	News	Photography	Productivity	Reference
Social Networking	Sports	Travel	Utilities	Weather

3G
9:42 AM

Graphics Technologies

Geoff Stahl
Senior Manager, Graphics and Imaging


OpenGL

RAGE

Core Video

Quartz Composer

Quartz

Core Image

Core Animation

ImageKit

64

OpenGL|ES
TM

3G
9:42 AM
Back
Horse Table
Help
Dealer:
Two Pairs

3G
9:42 AM
Completion 49 %
STRING USED
70%

3G
9:42 AM
Google Earth
© 2008 Tele Atlas
Image © 2008 Institut Cartografic de Catalunya

OpenGL|ES
TM
2.0

OpenGL 2.0 for mobile devices

Programmable hardware

OpenGL Shading Language

Efficient GPU access

```
// simple planer color control
uniform sampler2DRect image;
uniform vec3 contribution;

void main(void) {
   gl_FragColor = vec4(contribution  * texture2DRect(image, gl_TexCoord[0].xy).xyz, 2.0);
}
```

GLSL

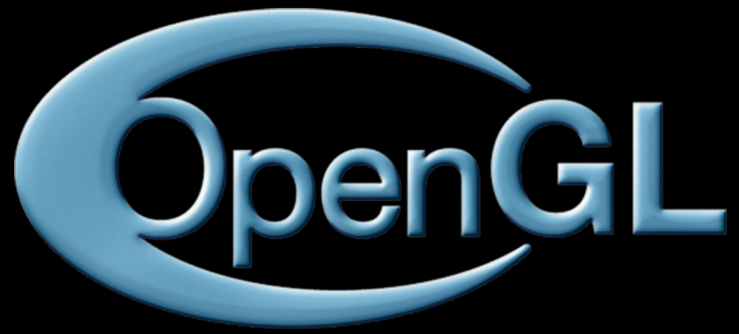
Fixed Function OpenGL

Demo

OpenGL ES 2.0

OpenGL ES 2.0 OpenGL ES 1.1

OpenGL|ES
™


OpenGL

Core Animation

2D planes in space

Automatic animation

GPU-accelerated compositing

AT&T
9:42 AM
RED HOT CHILI PEPPERS
STADIUM ARCADIUM
Red Hot Chili Pep
Dani Californ
Stadium Arcad
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9:42 AM
Done
01:05:42
-00:43:29

Back
Info
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Monthly Sales vs. Target
4
3

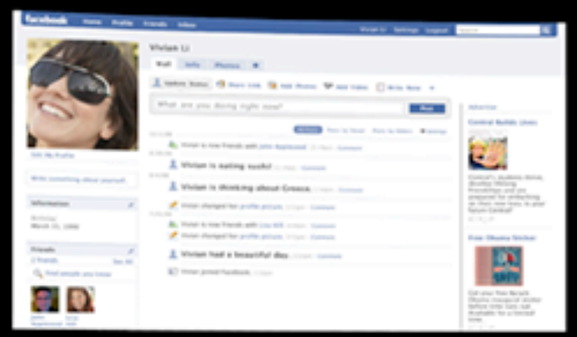
Top Sites

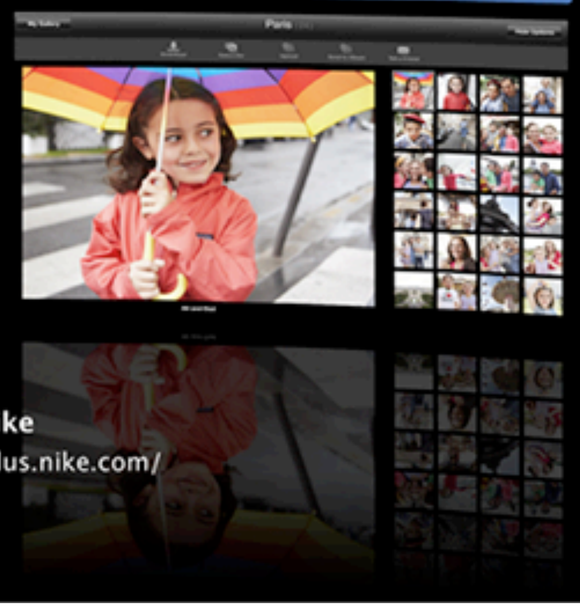
Go to this address

Google

Apple Yahoo! Google Maps YouTube Wikipedia News Popular

Top Sites





Pages File Edit Insert Format Arrange View Window Share Help

Mon 7:17 PM

Get Mail Delete Junk

MAILBOXES

Inbox

MobileMe

Yahoo! Mail 1

Drafts 1

Sent

Trash

From

Peter Lewis
Alice Liu
Michele Savoie
Nick Shaw
Rodney Culver
Martin Andrews
Justin Wood
Michele Roberts
Melissa Long
Keith Edwards

From: Keith Edwards
Subject: Jessica's Bir
Date: June 6, 2009
To: Craig Federig

View Full Screen Outline

Always Free

VI

Take bette summer photos!

Spring is here, and if you're people, you'll be taking a lot pictures over the next few m And while bright sunny days vibrant colors make for beau photos, they also can pose s challenges for the photograp

So we've asked our member their best summertime phot tips and we've printed the fi here. There were some great And photographers of every find something to help them better pictures.

1. REDUCE GLARE WITH A POLARIZING FILTER

Bright sun can also cause ha glare. By affixing a polarizin on your lens, you can achiev richer tones without the glar cost you a stop or two, but th are well worth it.

(continued o

VIEWFINDER SHOT OF THE MO Jeff Ressler submitted this priceless sh year-old Jessica. He titled it "All dresse nowhere to go."

100% 1,088 Words

The Collin Family (Page Layout)

View Full Screen Outline Pages Text Box Shapes Table Charts Comment iWork.com Inspector Media

Opacity: Shadow Reflection

2009 ANNUAL NEWSLETTER

THE COLLIN FAMILY

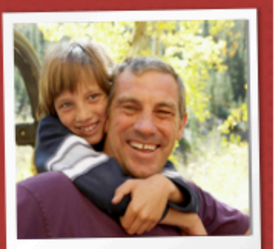
THIS YEAR, WE HAVE A LOT TO SMILE ABOUT.

It's been a busy year for the Collins.

We can hardly believe just a year ago we were packing up our things and moving to Aspen. It's a big change from Atlanta, but it sure hasn't taken long to fall in love with our new home (and our new dog, Riley). David and Sean have made lots of new friends. And they're loving life in the gorgeous Colorado mountains—especially when it starts snowing (and snowing and snowing). The boys spent most of the winter with snowboards strapped to their feet and are already whizzing down the slopes faster than their mom and dad. Of course, just because ski season eventually comes to an end doesn't mean the fun has to. This past summer we spent quite a few weekends camping, swimming, and biking. Kevin also took the boys on their first fly-fishing trip over Labor Day. And David even caught dinner—a 7-pound trout. (Apparently, it was "super yummy.")

CAMPING IN COLORADO

FLY-FISHING

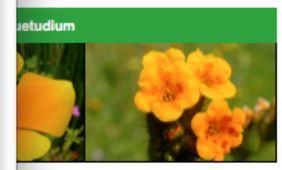


ASPEN IN THE FALL

100% 1,110 Words Page 1 of 4

iWork.com Inspector Media

school page 1 of 1



Home Delivery | Log In | Register Now

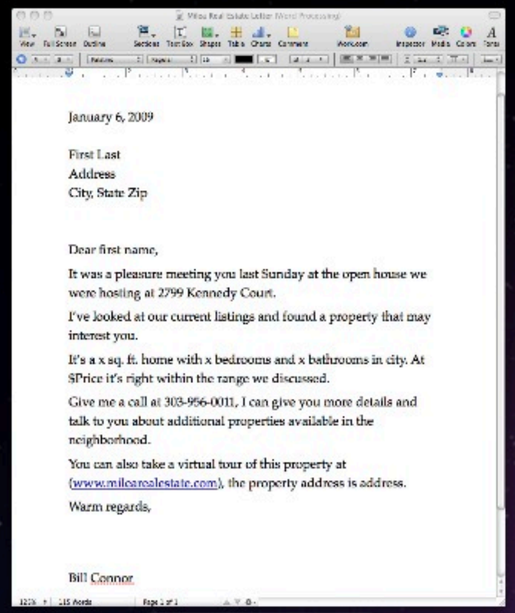
Home Delivery | Personalize Your Weather

OPINION »

100 Days: J.F.K.'s Words

Kennedy's inaugural speech addressed a country that had been united by fear.

- Editorial: Obama's Pledge
  Comments (134)
- Brooks: Cohesion Politics
- Herbert: A Salute
- Op-Ed: Bush's Goodbye
- Opinionator: On the Blogs
- Freakonomics: White House Economist
- Op-Chart: First-Timers



January 6, 2009

First Last
Address
City, State Zip

Dear first name,

It was a pleasure meeting you last Sunday at the open house we were hosting at 2799 Kennedy Court.

I've looked at our current listings and found a property that may interest you.

It's a x sq. ft. home with x bedrooms and x bathrooms in city. At $Price it's right within the range we discussed.

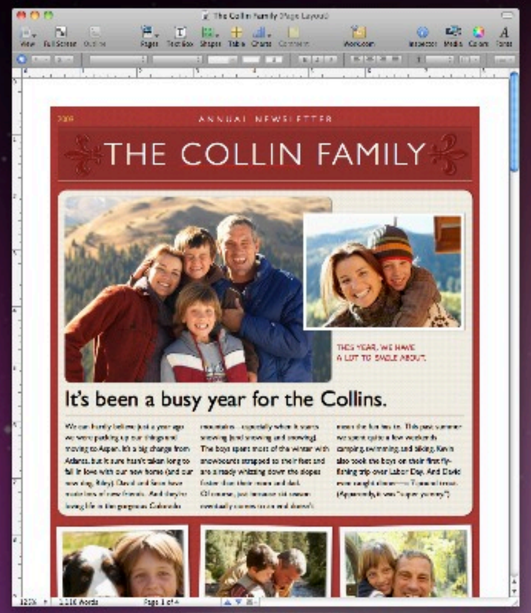
Give me a call at 303-956-0011, I can give you more details and talk to you about additional properties available in the neighborhood.

You can also take a virtual tour of this property at (www.milearealestate.com), the property address is address.

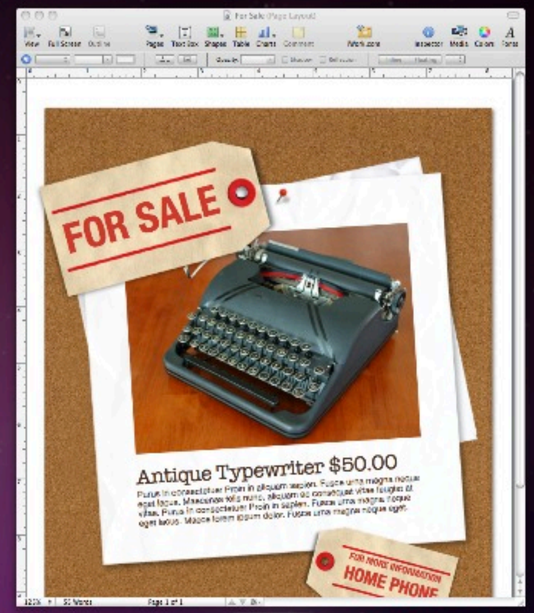
Warm regards,

Bill Connor

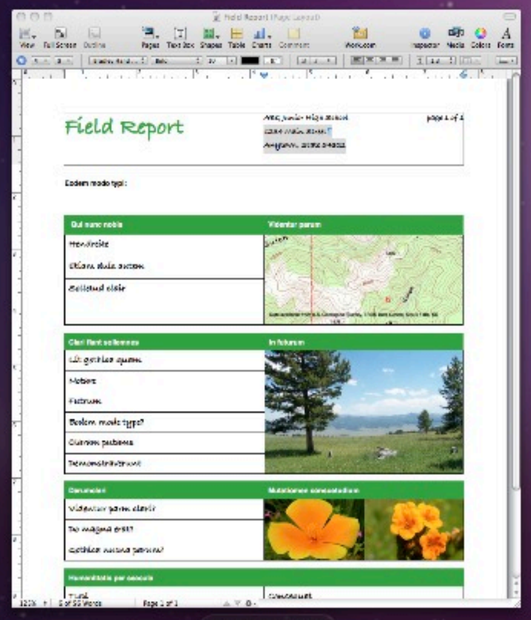
Milea Real Estate Letter



The Collin Family



For Sale



Field Report

Viewfinder

Quit Hide Options

3G
9:42 AM
Messages
Tuesday
9
Calendar
Photos
Camera
YouTube
Stocks
Maps
Weather
Voice Memos
Notes
Clock
Calculator
Settings
iTunes
App Store
Compass
Phone
Mail
Safari
iPod

OpenCL

Beyond graphics

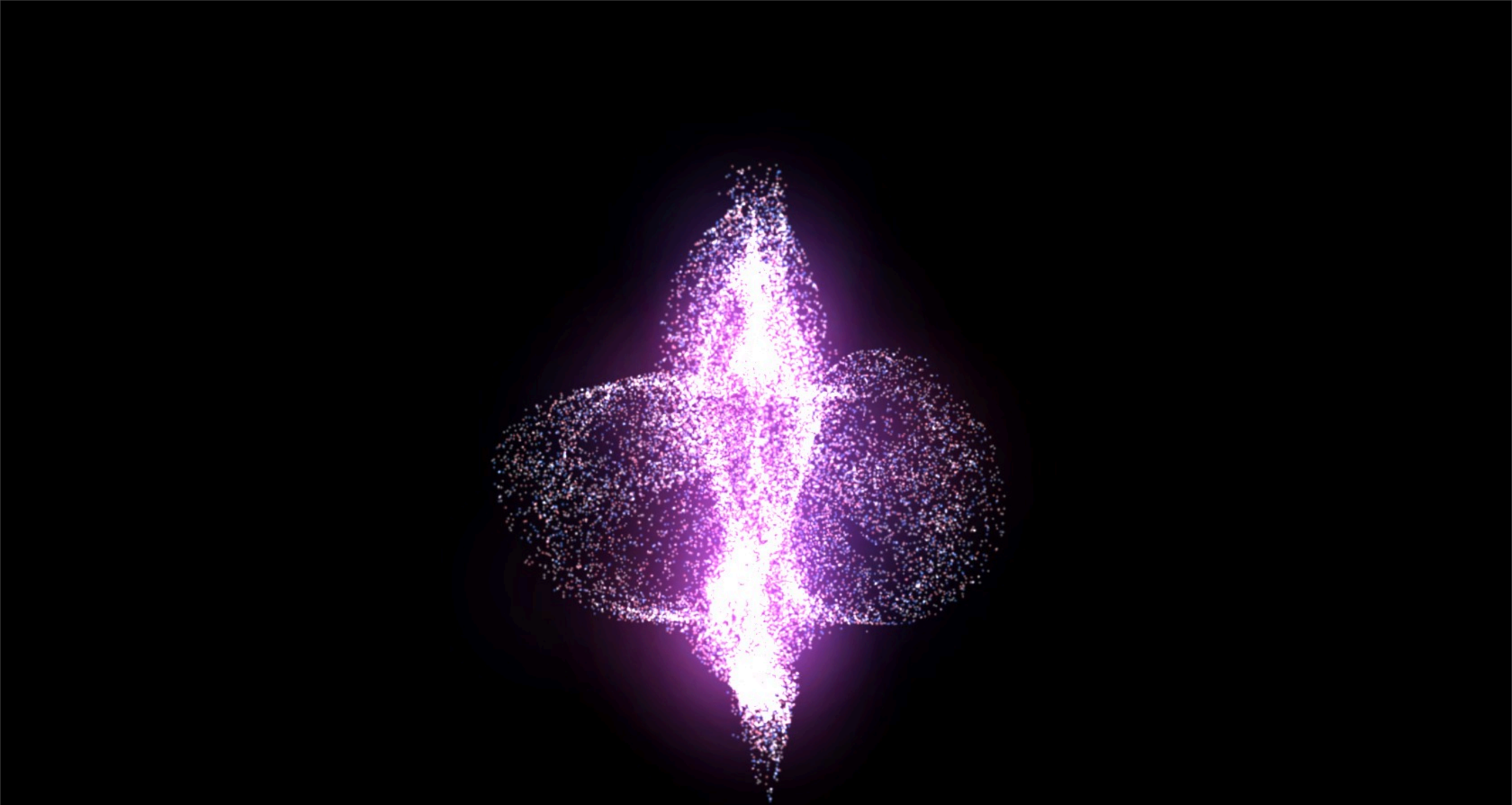
Easy programming model

C-like language

IEEE-based math library

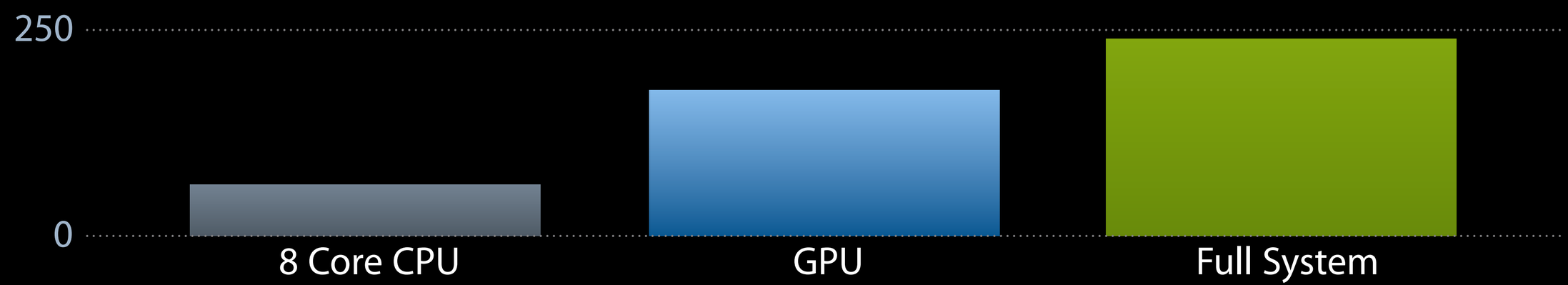
GPU

GPU
CPU



Galaxies

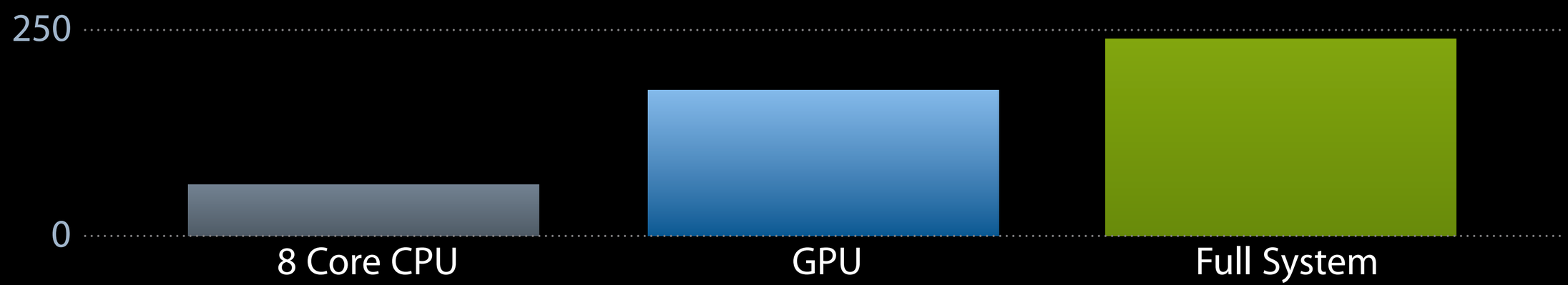
Galaxies 2008 Performance



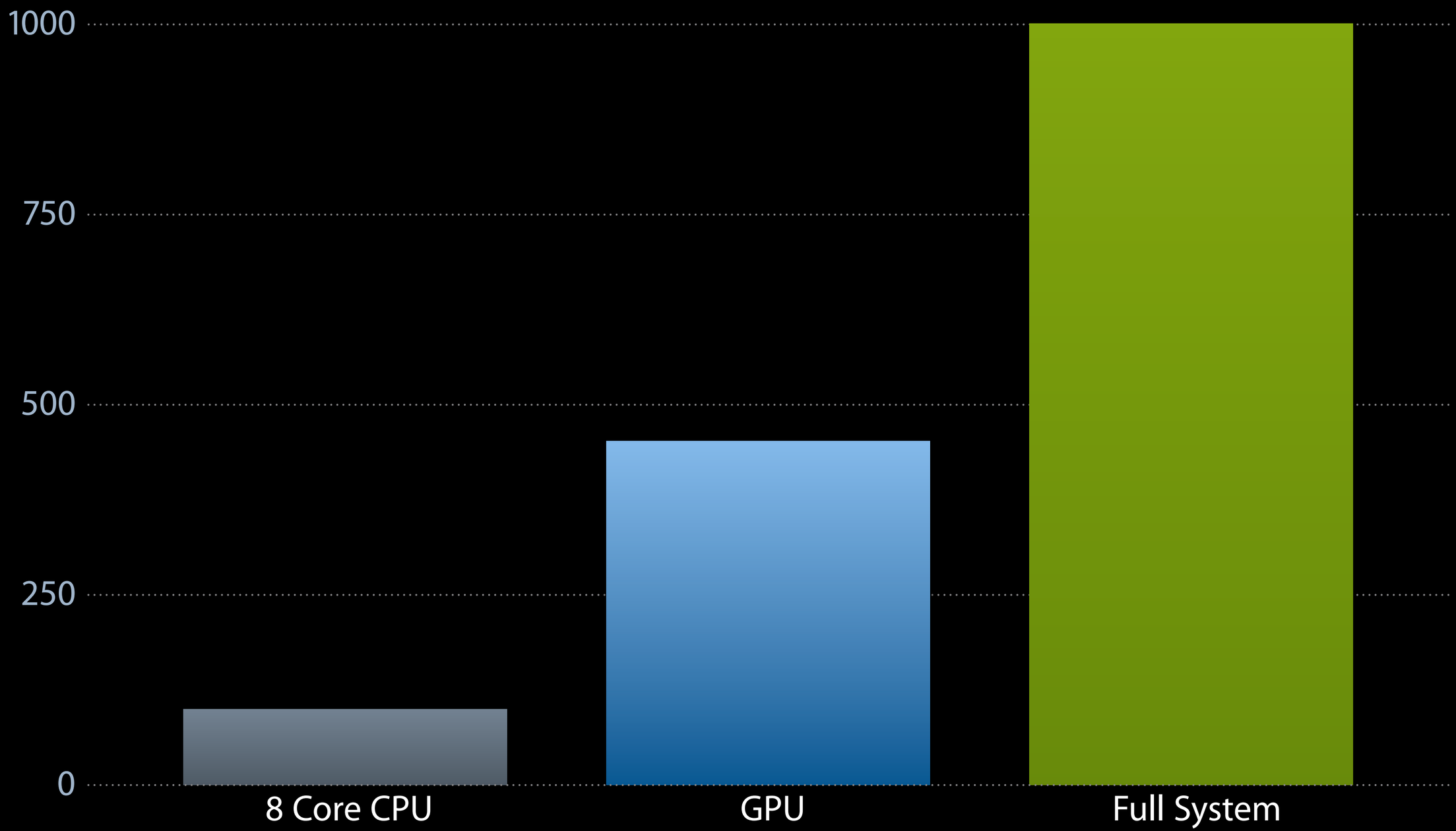
Demo

Galaxies

Galaxies Performance 2008



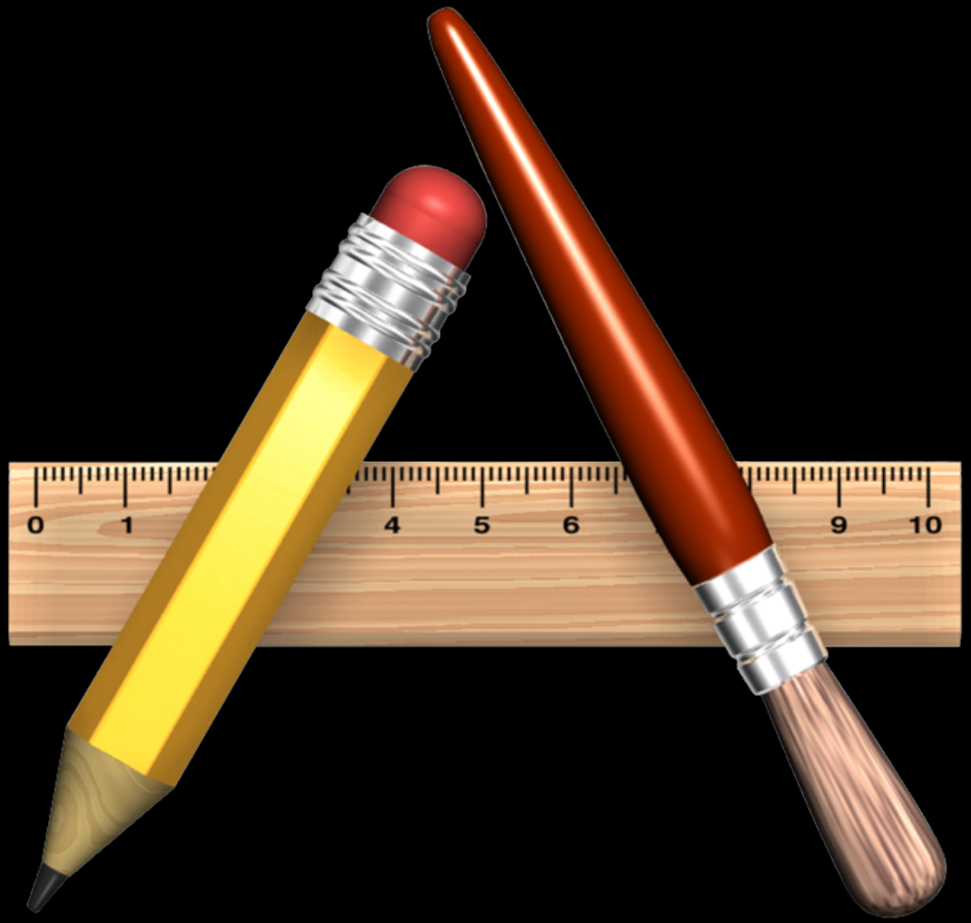
Galaxies Performance Today



Washington
University in St. Louis

SCHOOL OF MEDICINE

David Gohara
Washington University School of Medicine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10

Ratified Open Standard

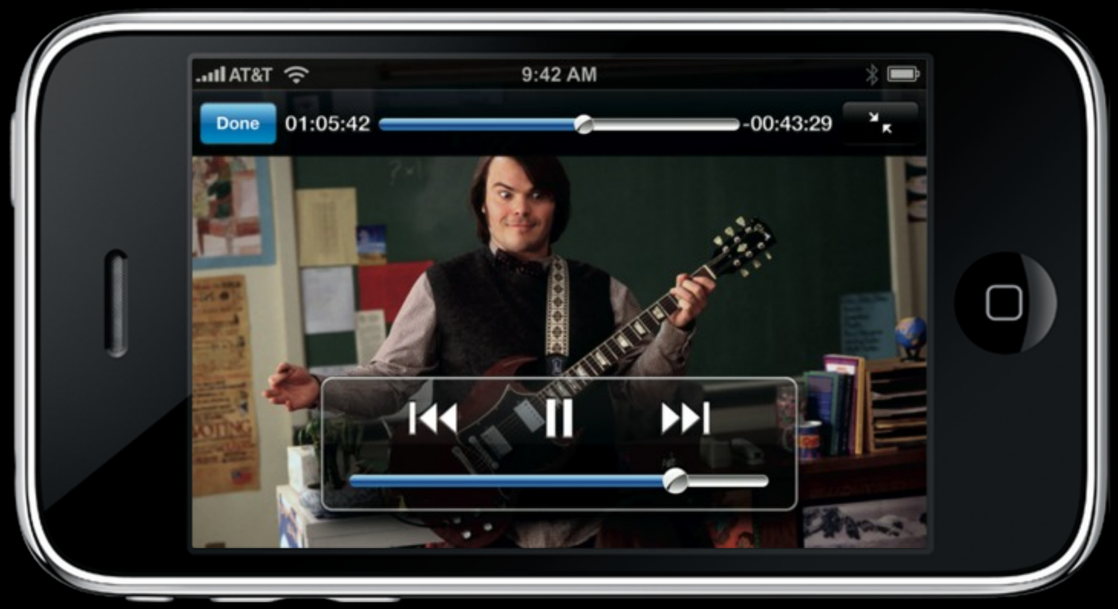
First conformant OpenCL implementation

OpenGL

OpenGL|ES™

Media Technologies

Tim Bienz
Director, Media Systems



Portable

Modular

Efficient

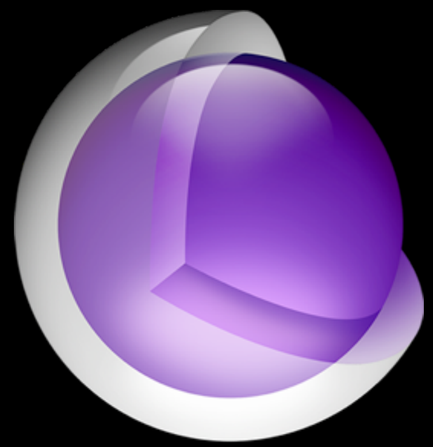
Mac OS X
Snow Leopard

QuickTime X

Playback Capture Export Streaming

Core Audio

Core Video



Core Animation

64

ColorSync

QTKit

H.264

HE-AAC

3G
9:42 AM
Messages
Tuesday
9
Calendar
Photos
Camera
YouTube
Stocks
Maps
Weather
Voice Memos
Notes
Clock
Calculator
Settings
iTunes
App Store
Compass
Phone
Mail
Safari
iPod

Mac OS X
Snow Leopard

HE-AAC

H.264

Hardware Acceleration

Keep transition duration at 2 seconds

470408047_95AKN-1920
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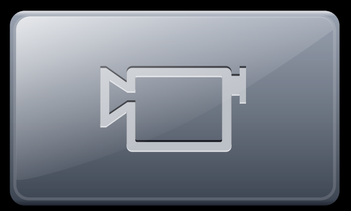
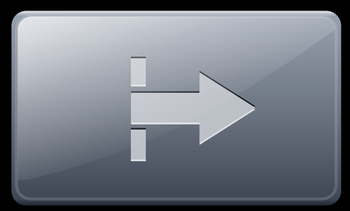
MacBook

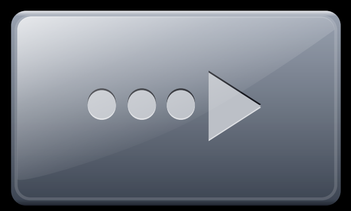
Playback



Capture



Export



Streaming

Video

iPhone
iPod
Apple TV

iTunes

Audio

Web

MobileMe
Gallery

Streamlined

Screen

Trimming

480p
720p
1080p

YouTube

Playback

Recording

Editing

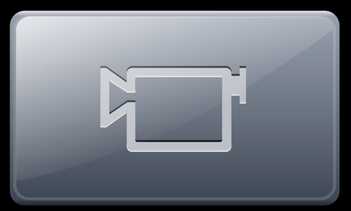
Conversion

Sharing

Demo

QuickTime Player

Playback



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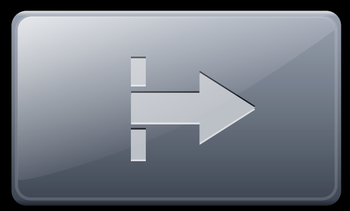

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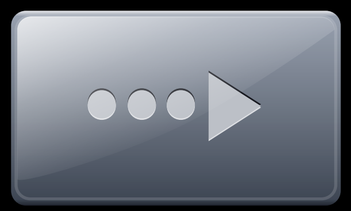
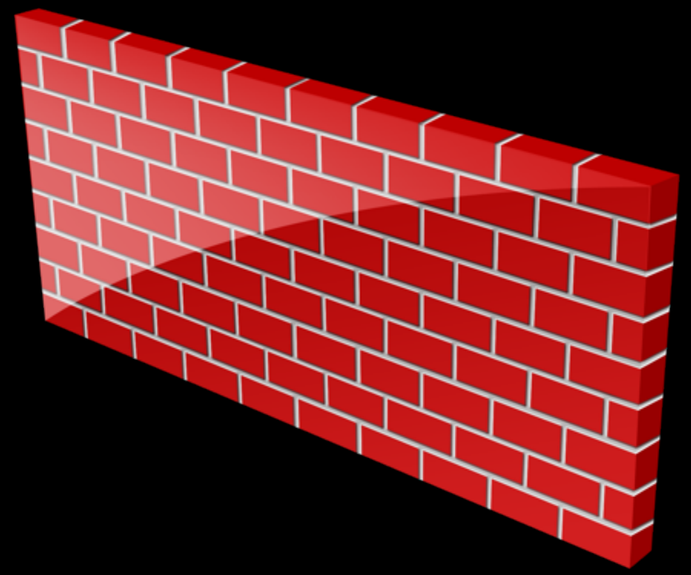


Streaming

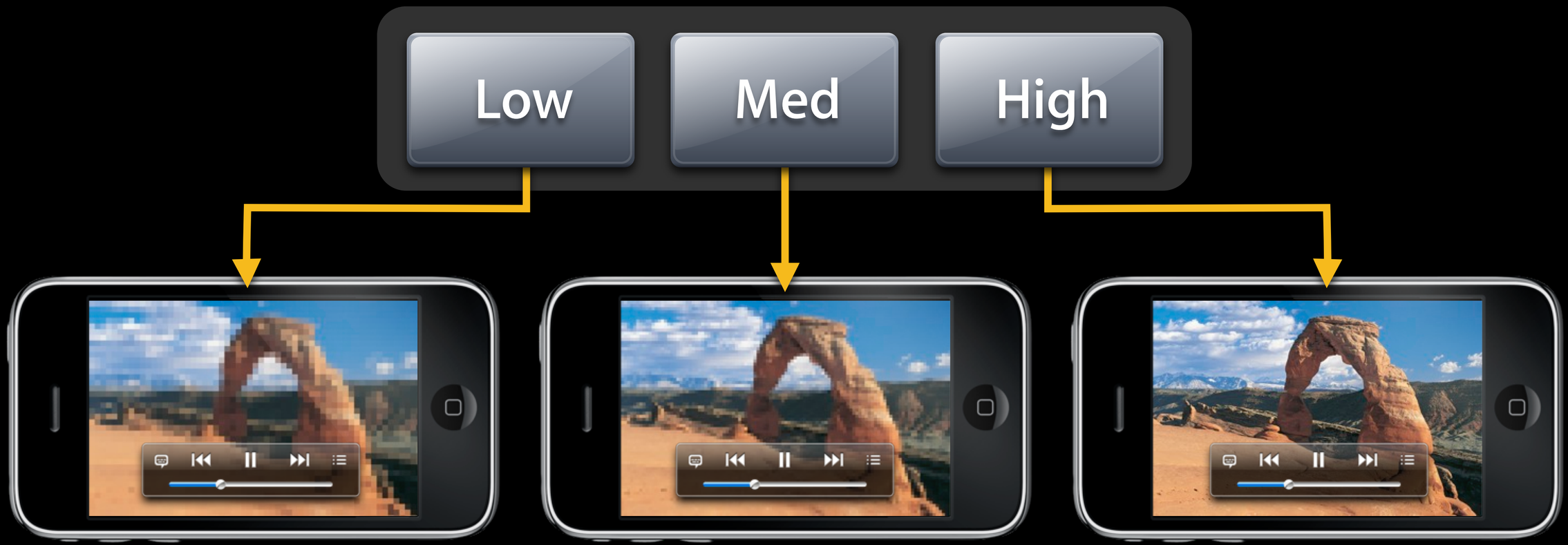
HTTP Live Streaming

Built on web standards



Firewall friendly

Suitable for commercial broadcast



Dynamically adapts to network conditions

H.264

IETF

Published IETF draft

Commercial Encoder
Segmenter
Content Delivery Network

KC Estenson
General Manager
CNN.com

Tracy Pesin
Director, Mobile Engineering
MLB Advanced Media

HTTP Live Streaming

iPhone Technologies

meriko borogove
Senior Manager, iPhone Technologies

iPod
9:42 AM
Zero 7
Somersault
When It Falls
ZERO7
WHEN IT
FALLS

3G
9:42 AM
Messages
Tuesday
9
Calendar
Photos
Camera
YouTube
Stocks
280
Maps
73°
Weather
Voice Memos
Notes
Clock
Calculator
Settings
iTunes
App Store
Compass
Phone
Mail
Safari
iPod

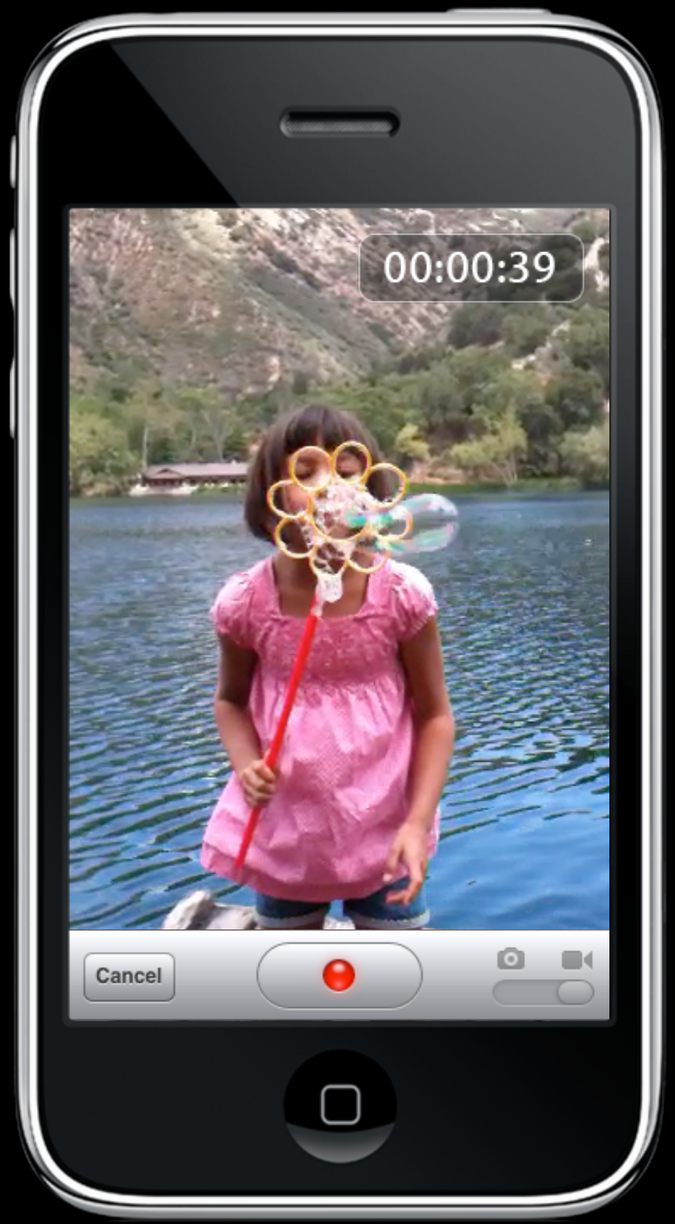
50,000

Books	Business	Education	Entertainment	Finance
Games	Healthcare & Fitness	Lifestyle	Medical	Music
Navigation	News	Photography	Productivity	Reference
Social Networking	Sports	Travel	Utilities	Weather

Books	Business	Education	Entertainment	Finance
Games	Healthcare & Fitness	Lifestyle	Medical	Music
Navigation	News	Photography	Productivity	Reference
Social Networking	Sports	Travel	Utilities	Weather

Config

Pan & Zoom
Color
Gray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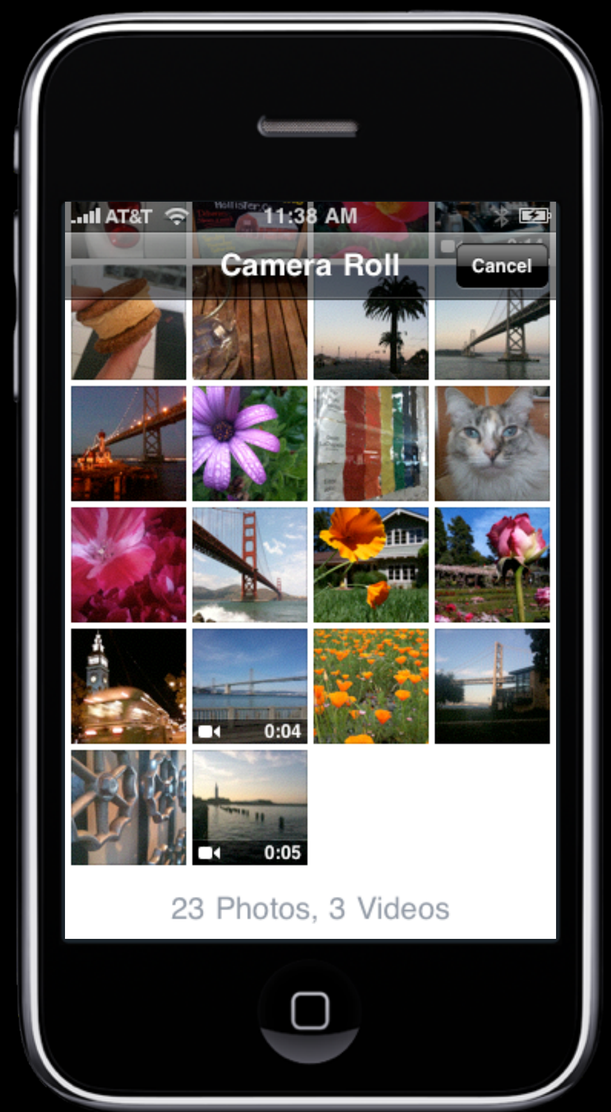
AT&T
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Camera Roll
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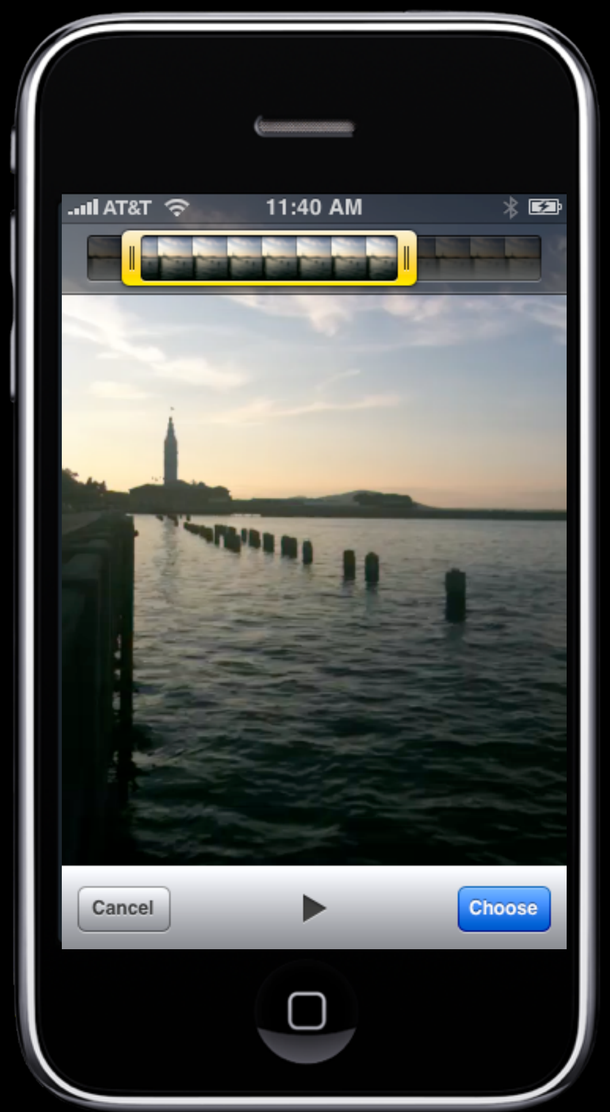
0:05
23 Photos, 3 Videos


AT&T
11:40 AM
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US INTL LX DX
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Calculator
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iTunes
App Store
Compass
Phone
Mail
Safari
iPod

SONY

PANDORA
Tap Tap Revenge
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Jack Johnson
Breakdown
In Between Dreams
Brett Dennen Radio
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AT&T
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3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
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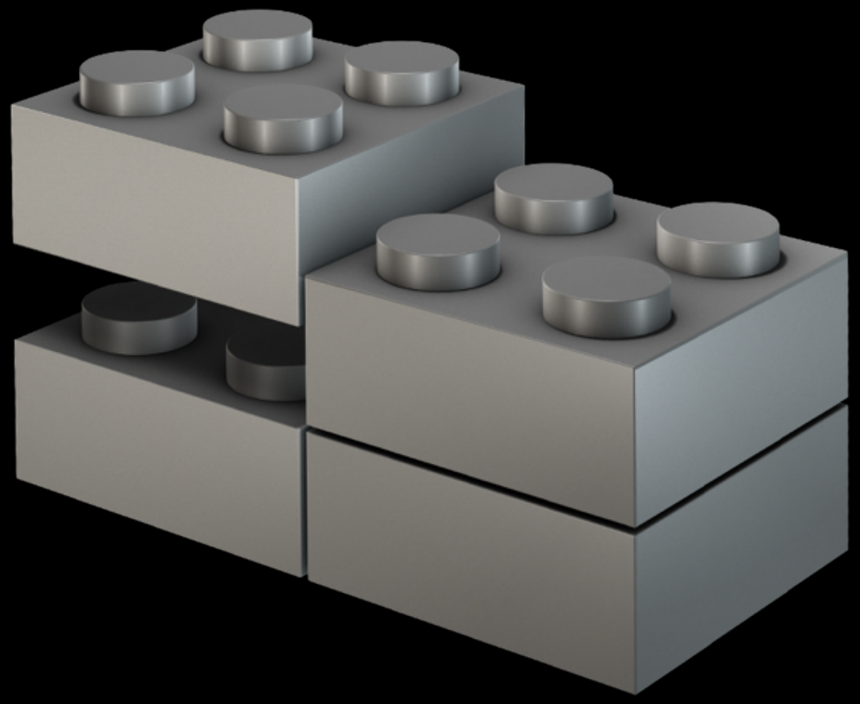
Contacts
Chats
Call
History
My Info
2:23 PM
Cancel
ening...
SHAZAM



Audio Toolbox

AV Foundation

openAL

iPod Library Access

Demo

Bloom

Graeme Devine, iPhone Game Technologies

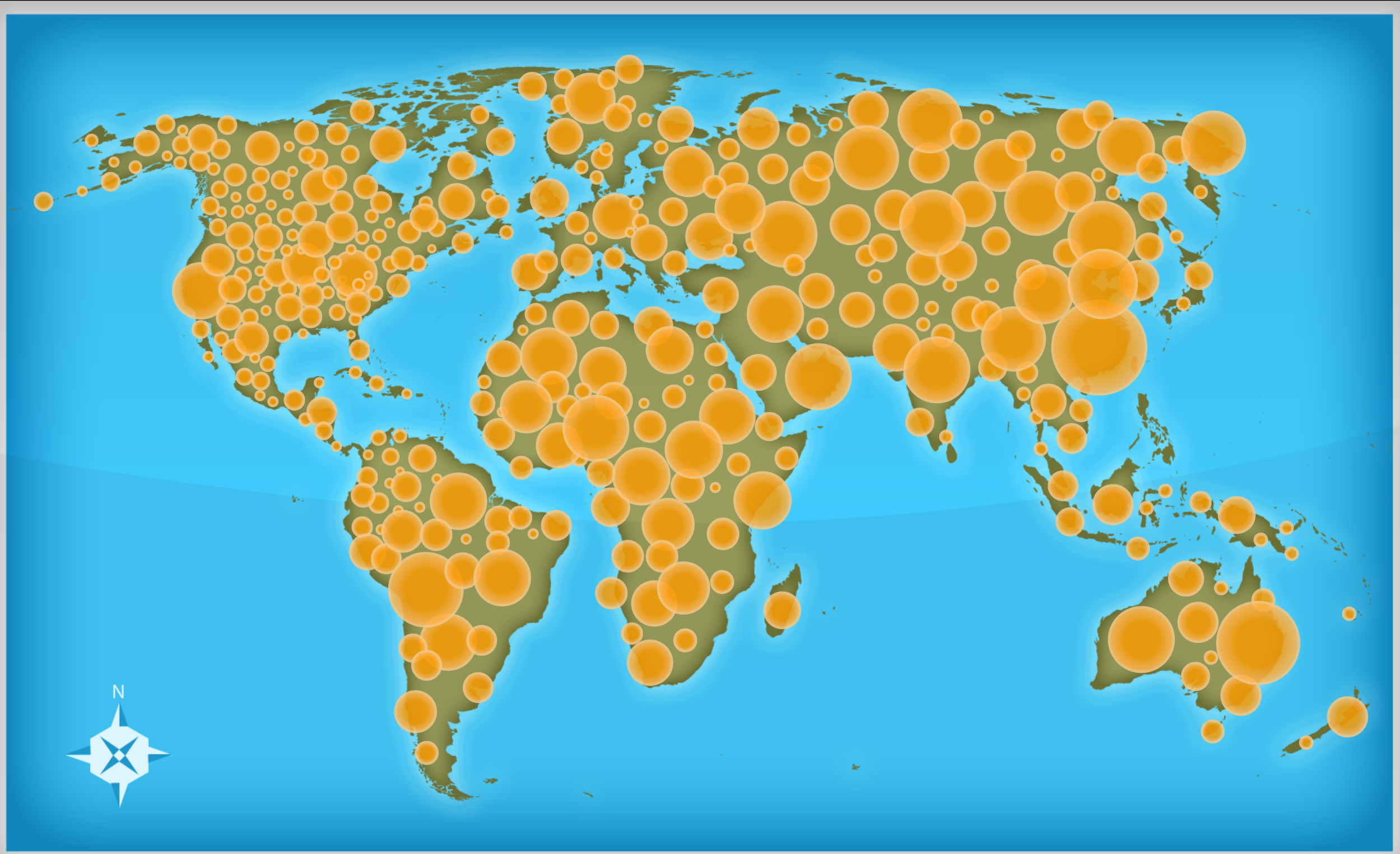
HALL WE PLAY A GAME?

openAL

OpenGL|ES

"One of the great things... iPhone is doing, is changing the relationship between the people making games and the people buying them."

Neil Young, ngmoco:)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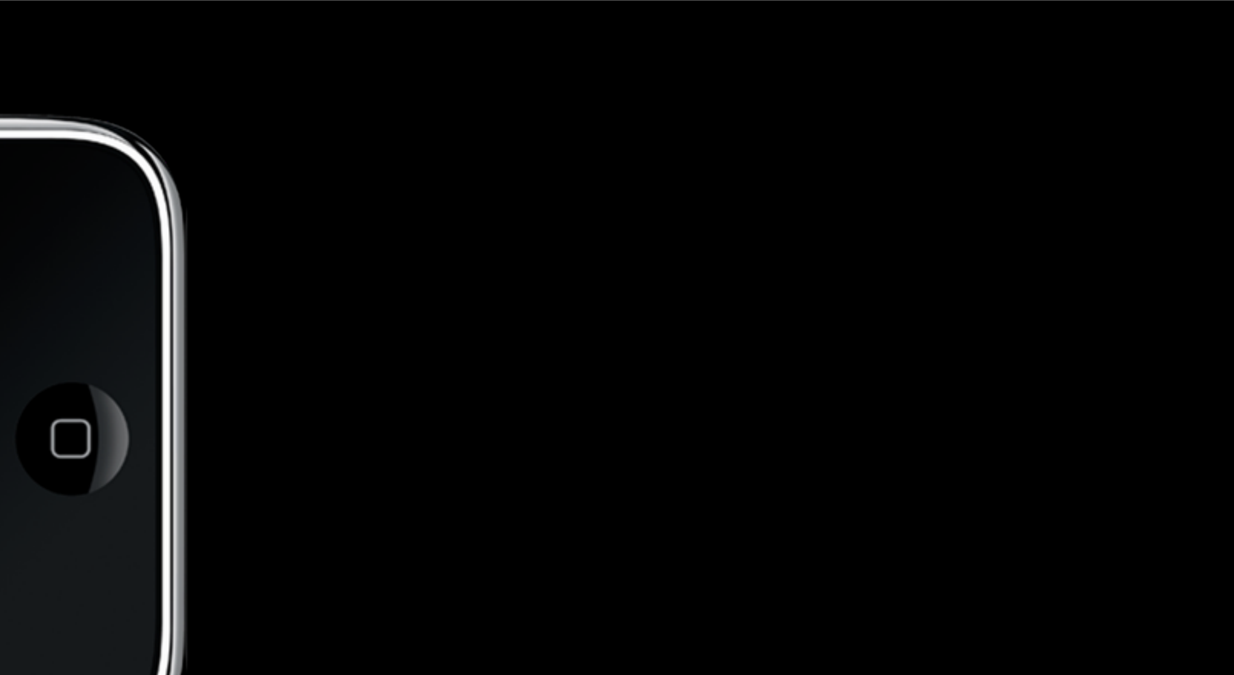

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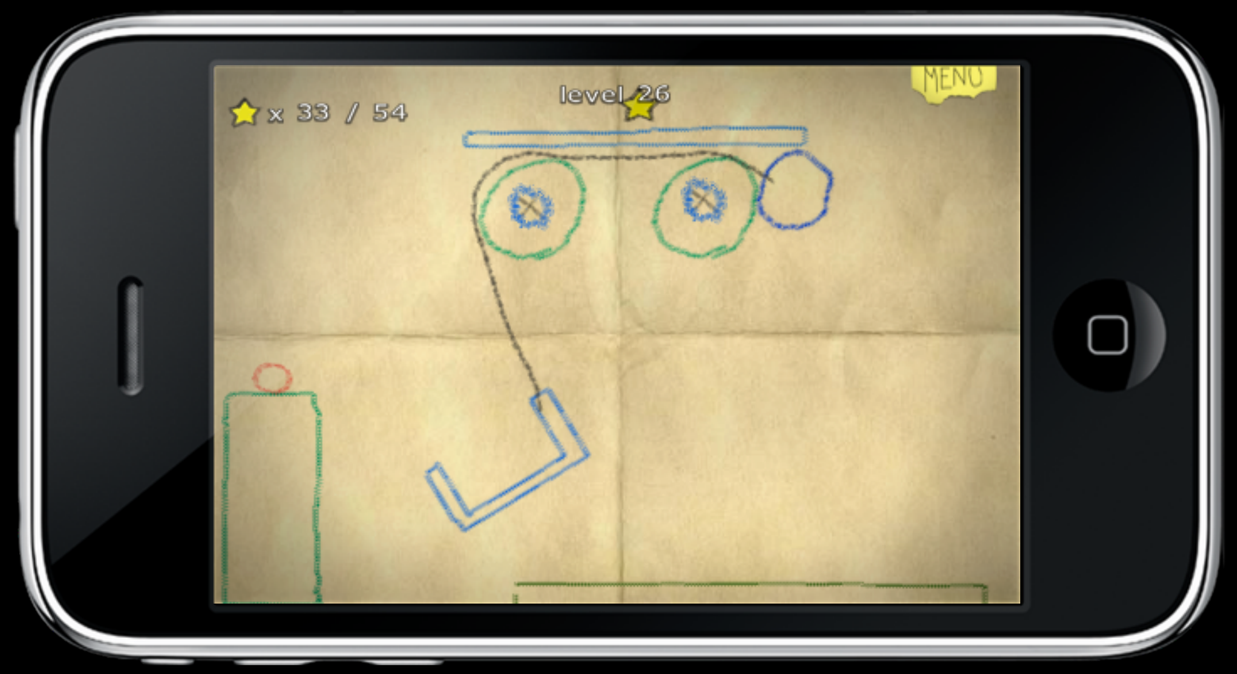
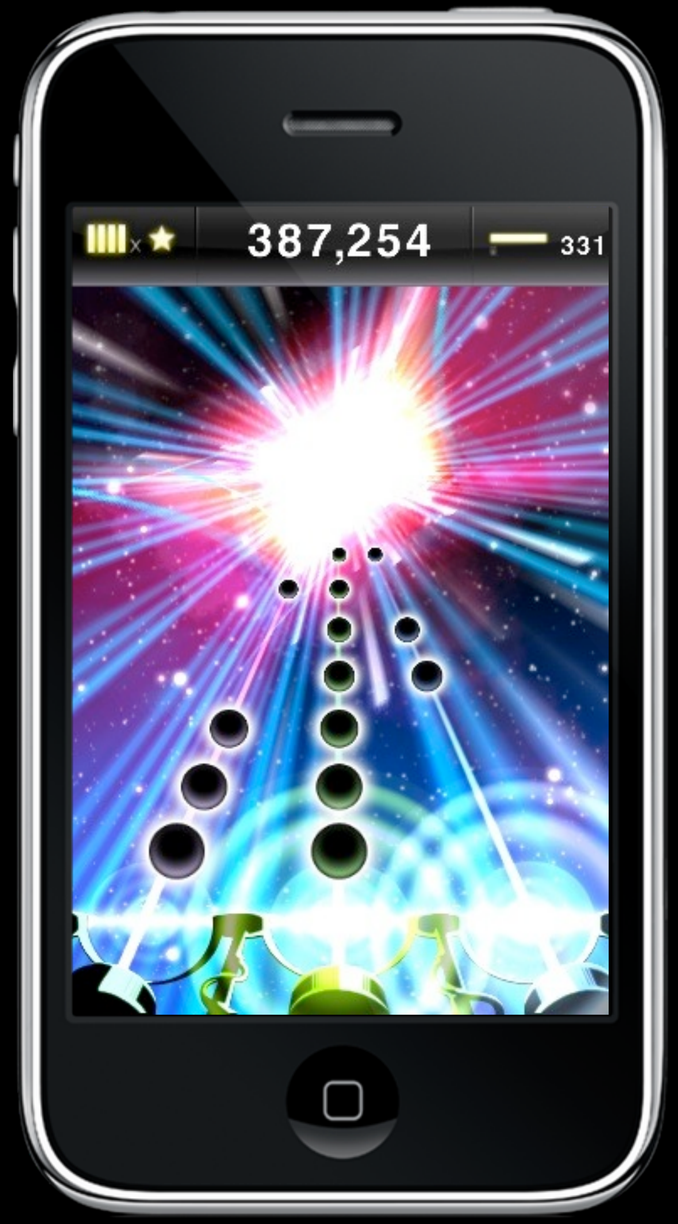
LAP 1/2
83
MPH

670
TEASE
Level 1
4


x 33 / 54
level 26
MENU


387,254
331

Movement

60
6
912,195

“Right now, the iPhone is the best platform in the world for a small team to make an impact with.”

John Carmack, id Software

Demo

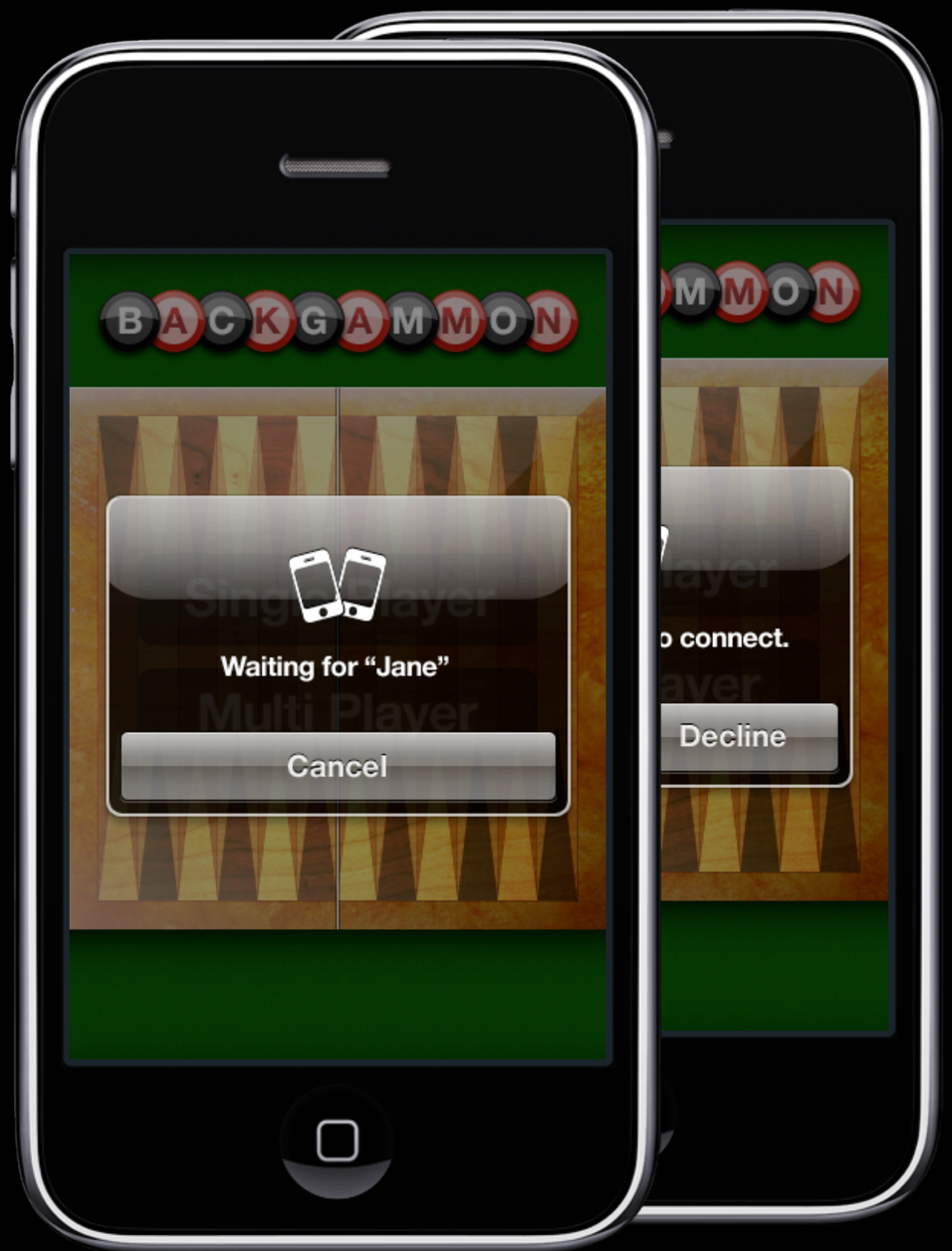
Digital Legends

3.0

1

OpenGL|ES

GameKit


BACKGAMMON
Waiting for “Jane”
Cancel
Decline

Voice Chat

OpenGL|ES
TM

Demo

Shock!

Mac OS X
Snow Leopard

3.0

OpenCL

OpenGL
OpenGL|ES

WWDC09